Amendments to the Claims

1. (Currently Amended) A ~~media access control frame structure in a~~ cable network, comprising:

a cable modem (CM) for transmitting and receiving data;

a media access control frame structure in the cable network to initialize payload header suppression of transmitted data packets through extended header types, the media access control frame structure comprising:

a media access control header including various extended header types according to a service flow of data packets between a sender and a receiver over the cable network to be inserted in a payload data unit to initialize a payload header suppression rule; and

a payload data unit comprising payload header suppression parameters other than those defined in the various extended header types according to a payload header suppression rule to permit initialization of payload header suppression using the defined PHS rule parameters in the various extended header types and the payload header suppression parameters in the payload data unit other than those defined in the various extended header types.

2. (Currently Amended) The cable network ~~media access control frame structure~~ of claim 1, wherein the media access control header comprises:

a frame controller for controlling a frame;

a MAC_PARM part that is a media access control parameter and shows the number of minislots or asynchronous transfer mode cells;

a LEN part for showing the length of the media access control frame;

an EHDR part for showing the type, the length, the value, and the payload header suppression index of an extended header and changing the payload header suppression rule using 3 extended types; and

a header check sequence for checking the media access control header

3. (Currently Amended) The cable network ~~media access control frame structure~~ of claim 1, wherein the media access control header comprises an EHDR part for showing the type, the length, the value, and the payload header suppression index of the extended header and changing the payload header suppression rule using the 3 extended types.

4. (Currently Amended) The cable network ~~media access control frame structure~~ of claim 1, wherein the payload data unit comprises:

a source address part for showing the address of the sender for transmitting suppressed payload header information;

a destination address part for showing the address of the receiver, to which the suppressed payload header information is to be received;

a type/length part for showing the type and the length of the suppressed payload header information;

user data having information data and parameters according to the payload header suppression rule; and

a cycling redundancy checking unit for checking the error of media access control frame data.

5. (Currently Amended) The cable network ~~media access control frame structure~~ of claim 4, wherein the parameters according to the payload header suppression rule comprise a payload header suppression size, a payload header suppression field, a payload header suppression mask, and a payload header suppression verification.

6. (Currently Amended) A data communication method in a cable network, comprising the steps of:

transmitting a first EH_TYPE data packet according to its ~~change in a~~ payload header suppression rule to a receiver when the payload header suppression rule ~~changes~~ differs from the

payload transmission rule of a preceding data transmission packet, in the case where communication is performed between a sender and the receiver;

checking whether there exists an error in the first EH_TYPE data packet that has been transmitted to the receiver, determining whether to apply a new payload header suppression rule on the basis of the first EH_TYPE, and transmitting a second EH_TYPE data packet to the sender; and

terminating transmission to the receiver of a common payload header suppression packet, setting a packet type as a third EH_TYPE, suppressing a packet into a new channel, and transmitting the packet when the second EH_TYPE packet is a success message and setting the packet type as a common media access control packet and transmitting the packet without performing suppression when the second EH_TYPE packet is a failure message.

7. (Original) The data communication method of claim 6, wherein the second EH_TYPE packet comprises a success or failure message.

8. (Original) The data communication method of claim 6, wherein the sender continuously transmits the first EH_TYPE to the receiver until the second EH_TYPE packet is received from the receiver.

9. (Original) The data communication method of claim 6, further comprising a step of the sender determining that the receiver cannot support a new payload header suppression rule.

10. (Currently Amended) ~~The data communication method of claim 6,~~

A data communication method in a cable network, comprising the steps of:

transmitting a first EH_TYPE packet according to change in a payload header suppression rule to a receiver when the payload header suppression rule changes, in the case where communication is performed between a sender and the receiver;

checking whether there exists an error in the first EH_TYPE packet, determining whether to apply a new payload header suppression rule on the basis of the first EH_TYPE, and transmitting a second EH_TYPE data packet to the sender; and

terminating transmission to the receiver of a common payload header suppression packet, setting a packet type as a third EH_TYPE, suppressing a packet into a new channel, and transmitting the packet when the second EH_TYPE packet is a success message and setting the packet type as a common media access control packet and transmitting the packet without performing suppression when the second EH_TYPE packet is a failure message;

wherein the first EH_TYPE packet is set as a packet whose EH_TYPE is 7, the second EH_TYPE packet is set as a packet whose EH_TYPE is 8, and the third EH_TYPE packet is set as a packet whose EH_TYPE is 6 when the sender transmits the data to the receiver and wherein the first EH_TYPE packet is set as the packet whose EH_TYPE is 7, the second EH_TYPE packet is set as the packet whose EH_TYPE is 8, and the third EH_TYPE packet is set as the packet whose EH_TYPE is 5 when the receiver transmits the data to the sender.

11. (Currently Amended) A data communication method, comprising the steps of:

transmitting a first EH_TYPE data packet according its ~~to change in a~~ payload header suppression rule to a receiver when the payload header suppression rule ~~changes~~ differs from the payload transmission rule of a preceding data transmission packet, in the case where communication is performed between a sender and the receiver; and

checking whether there exists an error in the first EH_TYPE data packet that has been transmitted to the receiver, determining whether to apply a new payload header suppression rule, and transmitting a second EH_TYPE packet to the sender.

12. (Original) The data communication method of claim 11, wherein the sender continuously transmits the first EH_TYPE packet to the receiver until the second EH_TYPE packet is received from the receiver.

13. (Original) The data communication method of claim 11, further comprising a step of determining that the receiver cannot support the new payload header suppression rule when the second EH_TYPE packet is not received from the receiver for a predetermined time.

14. (Currently Amended) ~~The data communication method of claim 11,~~ A data communication method in a cable network, comprising:

transmitting a first EH_TYPE packet according to change in a payload header suppression rule to a receiver when the payload header suppression rule changes, in the case where communication is performed between a sender and the receiver; and

checking whether there exists an error in the first EH_TYPE packet, determining whether to apply a new payload header suppression rule, and transmitting a second EH_TYPE packet to the sender;

wherein the first EH_TYPE packet transmitted and received by the sender and the receiver is set as the packet whose EH_TYPE is 7, the second EH_TYPE packet is set as the packet whose EH_TYPE is 8, and the third EH_TYPE packet is set as the packet whose EH_TYPE is 6 when the sender transmits the data to the receiver and wherein the first EH_TYPE packet is set as the packet whose EH_TYPE is 7, the second EH_TYPE packet is set as the packet whose EH_TYPE is 8, and the third EH_TYPE packet is set as the packet whose EH_TYPE is 5 when the receiver transmits the data to the sender.

15. (Original) The data communication method of claim 11, further comprising a step of terminating the transmission of the common payload header suppression packet, setting the packet type as the third EH_TYPE, suppressing the packet into the new channel, and transmitting the packet when the second EH_TYPE packet is the success message.

16. (Original) The data communication method of claim 11, further comprising a step of setting the packet type as the common media access control packet and transmitting the

packet without performing the suppression when the second EH_TYPE packet is the failure message.

17. (New) A method of using a media access control frame structure in a cable network to initialize payload header suppression of transmitted data packets through extended header types, comprising:

defining payload header suppression rule parameters in various extended header types in a media access control header according to a service flow of data packets between a sender and a receiver to be inserted in a payload data unit to initialize a payload header suppression rule; and

inserting into a payload data unit payload header suppression parameters other than those defined in the various extended header types according to a payload header suppression rule to initialize payload header suppression using the defined PHS rule parameters in the various extended header types and the payload header suppression parameters in the payload data unit other than those defined in the various extended header types.

18. (New) A media access control frame structure embodied on a computer readable medium to initialize payload header suppression of transmitted data packets through extended header types, the media access control frame structure comprising:

a media access control header including various extended header types according to a service flow of data packets between a sender and a receiver over a cable network to be inserted in a payload data unit to initialize a payload header suppression rule; and

a payload data unit comprising payload header suppression parameters other than those defined in the various extended header types according to a payload header suppression rule to permit initialization of payload header suppression using the defined PHS rule parameters in the various extended header types and the payload header suppression parameters in the payload data unit other than those defined in the various extended header types.

19. (New) The media access control frame structure of claim 18, wherein the media access control header comprises:

a frame controller for controlling a frame;

a MAC_PARM part that is a media access control parameter and shows the number of minislots or asynchronous transfer mode cells;

a LEN part for showing the length of the media access control frame;

an EHDR part for showing the type, the length, the value, and the payload header suppression index of an extended header and changing the payload header suppression rule using 3 extended types; and

a header check sequence for checking the media access control header.

20. (New) The media access control frame structure of claim 18, wherein the media access control header comprises an EHDR part for showing the type, the length, the value, and the payload header suppression index of the extended header and changing the payload header suppression rule using the 3 extended types.

21. (New) The media access control frame structure claim 18, wherein the payload data unit comprises:

a source address part for showing the address of the sender for transmitting suppressed payload header information;

a destination address part for showing the address of the receiver, to which the suppressed payload header information is to be received;

a type/length part for showing the type and the length of the suppressed payload header information;

user data having information data and parameters according to the payload header suppression rule; and

a cycling redundancy checking unit for checking the error of media access control frame data.

22. (New) The media access control frame structure of claim 21, wherein the parameters according to the payload header suppression rule comprise a payload header suppression size, a payload header suppression field, a payload header suppression mask, and a payload header suppression verification.